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**Anesthesia and Orthopaedic Surgery.** By André P. Boezaart, M.B., Ch.B., F.F.A.(C.M.S.A.), M.Med.(Anaesth.), Ph.D. New York, McGraw Hill, 2006. Pages: 453. Price: \$159.00.

“... Regional anesthesia is here to stay ...”

This was the prediction of William J. Mayo (Professor, Department of Surgery, Mayo Clinic, Rochester, Minnesota; 1861-1939) when he wrote the Forward to Gaston Labat's (Professor, Department of Anesthesia, New York University and Bellevue Hospitals, New York, New York; 1876-1934) book, *Regional Anesthesia: Its Technic and Clinical Application* in 1922. Now, more than 80 yr later, this quotation has taken on new meaning in the field of orthopedic anesthesia. The subspecialty of orthopedic anesthesia has seen tremendous growth and interest during the past decade. This has been driven by multiple factors, including an aging patient population, improvements in the application of regional anesthetic techniques, a greater demand for joint replacement surgery, and advancements in endoscopic techniques, biocompatible materials, imaging equipment, and computer-guided technologies. In fact, the American Academy of Orthopedic Surgeons and the National Center for Healthcare Statistics estimate that more than 8.2 million orthopedic procedures will be performed in 2007—nearly 30% of all major surgical interventions. Therefore, the release of a new comprehensive text addressing the critical issues of the subspecialty could not be more timely.

The text is divided into four major sections: General Principles (6 chapters), Operative Orthopaedic Procedures (11 chapters), Regional Anesthesia for Orthopaedic Surgery (14 chapters), and Miscellaneous Topics (3 chapters). The first section (Part I: General Principles) begins with an overview of “Orthopaedic Anesthesia as a Subspecialty of Anesthesia.” This is followed by an extensive review of “Homeostasis in Massive Multiple Trauma.” The chapter provides a detailed discussion on the epidemiology and pathophysiologic response to trauma, including an overview of the complex cellular and neuroendocrine response to trauma and the effect of systemic injury on individual organ systems. The chapter concludes by reviewing the basic principles of trauma management, including resuscitation, monitoring, fluid management, vasoactive therapy, and postoperative intensive care unit support. The remaining segments of Part I focus on the “Prevention of Infection in Orthopaedic Surgery” and “Thromboprophylaxis in Orthopaedic Surgery.” Although the discussion on infection and the prevention of infectious complications is quite superficial, the authors do a superb job of reviewing the incidence and impact of venous thromboembolism in orthopedic surgery, the pharmacology of antithrombotic medications, and recommended treatment options for thromboprophylaxis. More importantly, an extensive discussion nicely outlines the impact of anesthesia on venous thromboembolism, and the implications of perioperative thromboprophylaxis on the selection of anesthetic technique and perioperative analgesia.

The second section of the textbook (Part II: Operative Orthopaedic Procedures) is what makes this reference a valuable addition to your library. The chapters are written by orthopedic surgeons in collaboration with anesthesiologists to provide a unique and insightful view into the world of the orthopedist. Most experts would agree that optimal outcomes in orthopedic surgery rely heavily on the anesthesiologist's understanding of the technical aspects of the procedure—including intraoperative positioning issues, potential perioperative complications, and postoperative rehabilitative goals and requirements. This section provides those insights. The chapters are organized by joint or anatomical region, and address basic anatomic considerations (includ-

ing the biomechanics of most joints), common surgical procedures, anesthetic considerations, intraoperative and postoperative pain management schemes, postoperative protocols, and common perioperative complications. The chapters also emphasize how surgeons, anesthesiologists, physical therapists, and nurses must work as a coordinated team to optimize patient care. This is accomplished by understanding the roles and responsibilities of each discipline. The remaining segments of Part II focus on “Common Orthopaedic Fractures,” as well as the etiology, pathophysiology, diagnosis, and treatment of compartment syndrome. The section concludes with a comprehensive description of common “Sports Injuries to the Shoulder, Knee, and Ankle.” A potential criticism of Part II is the absence of evidence-based recommendations for many of the suggested anesthetic and perioperative analgesic techniques. Furthermore, all chapters were coauthored by the editor, which may introduce a personal and/or institutional bias for the recommended modalities of anesthetic management.

The third section of the text (Part III: Regional Anesthesia for Orthopaedic Surgery) covers the vast array of regional anesthetic techniques available for orthopedic surgery. It is yet another highlight of the book that focuses on continuous peripheral nerve blockade, neuraxial anesthesia and analgesia, and the ambulatory treatment of pain. Each chapter follows a consistent outline, describing relevant gross anatomy, functional neuroanatomy (including expected motor responses from nerve stimulation), and applied surface anatomy; patient selection and positioning; block technique (single-injection and continuous catheter applications); local anesthetic selection; and potential problems and complications. The section also includes comprehensive and informative chapters on “Commonly Used Drugs and Equipment,” “Electrical Nerve Stimulation,” “Continuous Peripheral Nerve Blocks,” and “The Use of Ultrasound for Peripheral Nerve Blocks.” In general, the chapters of this section are well written, well referenced, and compiled by recognized experts in the field. Finally, the textbook concludes with a spattering of miscellaneous topics (Part IV: Miscellaneous Topics), including nerve injury, bone cement, and battlefield orthopedic anesthesia.

With regard to format, there are a number of features that are particularly appealing. For example, each chapter possesses a structured outline that is reliably consistent throughout the text. The authors—experienced and novice alike—should be commended for their excellent writing style, and the publisher should be congratulated on a thorough and comprehensive index that makes navigating the text a simple task. Illustrations include both black-and-white line drawings and colorful cross-sectional and three-dimensional anatomical depictions of relevant musculoskeletal and neurovascular anatomy (artwork by Mary K. Bryson). In most cases, the illustrations do a nice job of emphasizing those structures most relevant to the orthopedic anesthesiologist, including needle insertion sites, trajectory, and depth of insertion. Finally, Dr. Boezaart's authorship of many of the chapters gives the book a stylistic consistency that greatly enhances its readability. However, it also brings a degree of personal bias that is unavoidable throughout much of the text. This is not a criticism of the book, but a limitation of any reference that is heavily influenced by a few select authors. Importantly, these imperfections are few, and pale in comparison to the clear and obvious strengths of the text. So, whether you are a casual practitioner of orthopedic anesthesia or an expert specializing in this expansive subspecialty, *Anesthesia and Orthopaedic Surgery* deserves a spot in your reference library.

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David O. Warner, M.D., served as Section Editor for this review.

**Perioperative Transfusion Medicine, 2nd Edition.** By Bruce D. Spiess, M.D., Richard K. Spence, M.D., F.A.C.S., and Aryeh Shander, M.D., F.C.C.M., F.C.C.P. Philadelphia, Lippincott Williams & Wilkins, 2006. Pages: 697. Price: \$129.00.

Two anesthesiologists (Bruce D. Spiess, M.D., Professor of Anesthesiology and Emergency Medicine, Director VCURES—Shock Center, Virginia Commonwealth University Medical Center, Richmond, Virginia; and Aryeh Shander, M.D., F.C.C.M., F.C.C.P., Clinical Professor of Internal Medicine and Anesthesiology, Mount Sinai School of Medicine, New York, New York, Chief, Departments of Anesthesiology, Critical Care Medicine, Pain Management, and Hyperbaric Medicine, Englewood Hospital and Medical Center, Englewood, New Jersey) and a surgeon (Richard K. Spence, M.D., F.A.C.S., Senior Vice President for Clinical Affairs, Infonale, Inc., West Chester, Pennsylvania) edited the second edition of *Perioperative Transfusion Medicine*. They state in the preface that it is largely new and wholly different from the first edition published in 1998. The majority of the 60 contributors are anesthesiologists, surgeons, or transfusion medicine/blood banking specialists. Forty percent of the chapters are authored or coauthored by the editors.

The book is divided into 11 sections. The introductory section is devoted to the history and economics of transfusion, the blood supply, ethics, and standards of practice. The section titled *The Physiologic Basis for Blood Management: A New Look* begins with a chapter on oxygen transport monitoring as the basis for developing transfusion triggers and continues with discussions of the physiology of anemia and erythrocyte transfusion, physiology of hemostasis, platelet physiology and cellular and protein interactions, iron metabolism and erythropoiesis, and another chapter on oxygen transport. Section 3 is devoted to transfusion risks (infection, immunomodulation, and acute reactions). Most references in this section are from the transfusion medicine literature, providing anesthesiologists with clinically relevant information from sources they ordinarily would not read. Although the first chapter in the Blood Component Therapy section indicates it is a surgeon's guide to blood banking and transfusion medicine, it is equally suitable for anesthesiologists. The section *Alternatives to Allogeneic Blood* covers preoperative autologous donation, erythropoietin therapy, hemoglobin-based oxygen carriers, and perfluorocarbon emulsions. The two sections devoted to trauma and the bleeding patient and coagulation issues contain 11 chapters. The chapter on perioperative coagulation monitoring begins with a review of coagulation (discussed in two other chapters) and continues with descriptions of coagulation monitoring devices and their clinical applications. The four chapters in the Anesthesia Considerations section are devoted to anesthetic techniques in blood conservation, erythrocyte salvage and autotransfusion, acute normovolemic hemodilution, and hypothermia and hemorrhage. Among the chapters in the section titled *Transfusion and Surgical Subspecialties* are one on surgery in patients with erythrocyte disorders and another on surgery in Jehovah's Witnesses. Cardiac and vascular surgery and solid organ transplantation also are discussed. Obstetrics and gynecology, pediatric surgery, oncologic surgery, and neurosurgery are considered in the following section.

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The last section, titled *Postoperative Transfusion Issues*, contains four chapters, written by the editors, which they describe as the heart of the book. In the chapter dealing with transfusion and outcome, they emphasize the lack of randomized studies and the paucity of data documenting the benefits of transfusion. After summarizing and critiquing the available studies examining relations between transfusion and outcome, they conclude that the data often indicate transfusion seems to worsen outcome—not improve it. The chapter by Drs. Shander and Spiess titled *The Transfusion Decision* is identical to the one by Drs. Spiess, Counts, and Gould in the first edition. When referring to other chapters, they use chapter numbers from the first edition—not the new edition! This is surprising in view of their claim in the preface that the entire concept of transfusion for surgical patients has undergone a revolution since the publication of the first edition, and the promise of an up-to-date assessment of the thinking involved in transfusion decisions. Some of the information is outdated and conflicts with that in other chapters. Two brief chapters, one on undertransfusion and another explaining their philosophy of blood management, follow. The latter contains 16 points clinicians should remember when considering transfusion. Among them are the importance of using clinical criteria, not number-based triggers, for transfusion; using blood conservation techniques and alternatives to allogeneic transfusion; following transfusion guidelines (not cookbook orders); and administering the safest available products, one unit at a time. One cannot argue with their philosophy.

As with any multiauthored book, there is a great deal of repetition. It seems contributors were not given (or did not follow) guidelines regarding what they should and should not cover and topics to be discussed by other contributors. For example, acute normovolemic hemodilution is discussed in seven consecutive chapters even though it is covered adequately in the chapter devoted to it. The incidence of transfusion-transmitted infectious disease is discussed in six chapters; the risks cited differ among chapters.

The authors included contributions from virtually every category of healthcare provider involved in transfusing patients in the perioperative period (anesthesiologists, surgeons, transfusion medicine specialists and blood bank personnel, critical care physicians, hematologists, perfusionists, and nurses) as well as others representing special interests (Jehovah's Witnesses, blood collection and distribution organizations, and blood management programs). The chapters on the physiology of anemia and erythrocyte transfusion, transfusion risks, anesthetic techniques in blood conservation, and transfusion and outcome should be of particular interest to anesthesiologists. Transfusion decisions must be made thoughtfully, based on clinical evaluation of individual patients. That message is conveyed very clearly. However, it may not find its way to a great number of anesthesiologists. Most chapters written by and targeted to surgeons will not appeal to anesthesiologists. The same is true for those on economics, the blood supply, blood storage, quality control and hospital blood use, and iron metabolism and erythropoiesis. Nevertheless, the book deserves a place in departmental libraries as a reference source. It provides information not readily available elsewhere.

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